

Figure 1

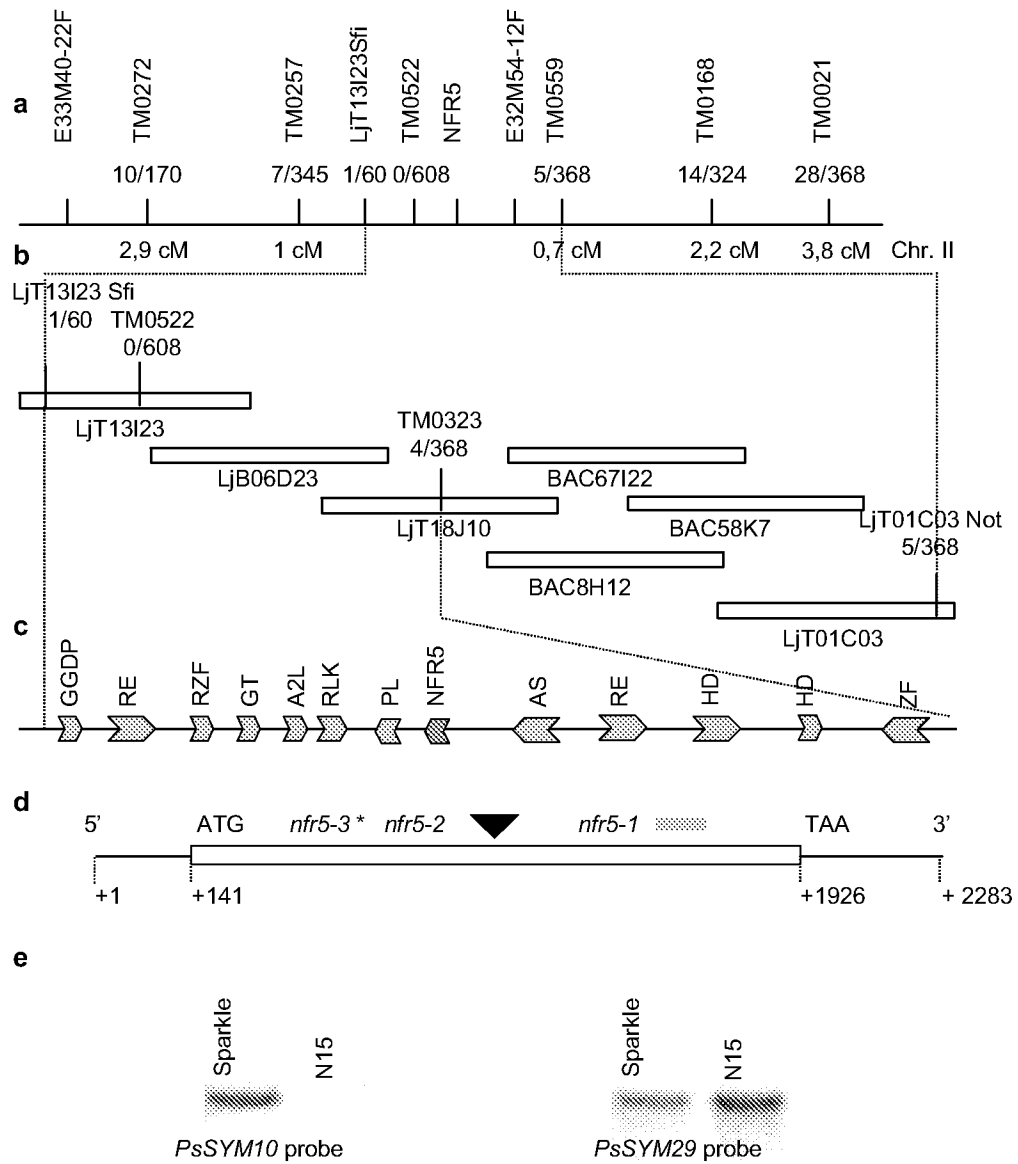


Figure 2

a



b

MAVFFLTSGSLSLFLALTLLFTNIAA	SP
RSEKISGPDFSCPVDSPPSCETYYVT	51 aa
* YTAQSPNLLSLTNISDIFDISPLSIARASNIDAGKDKLVPGQVLLVP	LysM1
VTGCGAGNHSSANTS	113 aa
YQIQLGDSYDFVATTLYENLTNWNIVQASNPGVNPYLLPERVKVVFPP	LysM2
LFRCRCPSKNQLNKGIQYLIT	180 aa
YVWKPNDNVSLVSAKFGASPADILTENRYGQDFTAATNLPILIP	LysM3
▼ VTQLPELTQPSSNGRKSSIHLL	246 aa
VILGITLGCTLLTAVLTGTLVYVYC	TM
RRKKALNRTASSAETADKLLSGVSGYVSKPNVYEIDEI	KD
I MEATKDFSDECKVGESVYKANIEGRVVAVKKIKEGGANEEELKILQKV	
II III NHGNLVKLMGVSSGYDGNCFVLVYEYAENGSLAEWLFSKSSGTPNSLT	
IV V WSQRISIAVDVAVGLQYMHEHTYPRIIHRDITTSNILLDSNFKAKIA	
Via Vlb NFAMARTSTNPMMPKIDVFAFGVLLIELLTGRKAMTTKENGEEVVMLW	
VII IX KDMWEIFDIEENREERIRKWMDPNLESFYHIDNALSASLAVNCTAD	
XI KSLSRPSMAEIVLSLSFLTQQSSNPTLERSLTSSGLDVEDDAHIVTS	
ITAR	595 aa

Figure 2

c

NFR5M1 52: YTAQSPNLLSLTNISDIFDISPLSIARASNIDAGKDKLVPGQVLLVP:98
 SYM10M1 52: YFARSPNFLSLTNISDIFDMSPLSIAKASNIEDEDKKLVEGQVLLIP:98
 M.tM1 53: YRAQSPNFLSLSNISDIFNLSPLRIAKASNIEAEDKKLIPDQLLLV:99
 RiceM1 47: YRTQSPGFELDLGNISDLFGVSRALIASANKLTTEDGVLLPGQPLLVP:93

NFR5M2 114: YQIQLGDSYDFVATTLYENLTNWNIVQASNPGVNPYLLPERVKVVFP:160
 SYM10M2 114: YTIKLGDNFYFIVSTTSYQNLTNVEMENFNPNLSPNLLPPEIKVVVP:160
 M.tM2 115: YSIKQGDNFFILSITSYQNLTNYLEFKNFNPNLSPTLLPLDTKVSVP:161
 RiceM2 109: YPIRPRDTFFGLAVTAFENLTDFVLVEELNPAAEATRLEPWQEVVVP:155
 VolvoxM2 106: YTIQPGDTFWAIAQR.RG..TTVDVIQSLNPGVNPARLQVQGVINVP:149
 Pfam 1: YTVKKGDTLWKIARR.YG..ISVSELKSLN.GLSSDNLYVVGQKLKIP:43

NFR5M3 181: YVWKPNNDNVSLVSAKEFGASPADILTENRYGQDFTAATNLPILIP:224
 SYM10M3 181: YVWQANDNVTRVSSKEFGASQVDMFTEN..NONFTASTNVPILIP:222
 M.tM3 182: YVWQDNNDNVTLVSSKFGASQVEMLAEN..NHNFTASTNRSVLIP:223
 RiceM3 176: YVWQPGDDVSVVSALMNASAANIAASNGVAGNSTFATGQPVLIP:219

d

	VII	VIII	IX
Cons	... <u>DFG</u>	<u>APE</u>	<u>D.W..G</u>
Smart	195: <u>KIADFGLSR..DLYSDDYYKVKGGKLPIRWM</u> <u>APESLKEGKFTSKSDVWSFG</u> :248		
Arab	500: <u>KIANFGVARILDEGDLDLQLTRHVEGTQGYLA</u> <u>PEYVENGVITSKL</u> <u>DVFAFG</u> :550		
NFR5	448: <u>KIANFAMARTSTN</u>	<u>PMMPKIDVFAFG</u> :472	
SYM10	449: <u>KIANFSMARTSTN</u>	<u>SMMPKIDVFAFG</u> :473	
M.t	450: <u>KIANFGMARTSTN</u>	<u>SMMPKIDVFAFG</u> :474	
Rice	476: <u>KLSNFS</u> <u>LAKPAAMVD</u>	<u>AAATSSDVFAFG</u> :502	

Figure 3

Lotus 1: NAVF~~FL~~TS~~GS~~LS~~FL~~ALT, LLFT~~NI~~AR~~SE~~BE~~KI~~GP~~DF~~SP~~CF~~VD~~SP~~SC~~ET~~VY~~TA~~Q~~SP~~N~~LS~~LT~~NI~~SD~~IF~~DI~~SP~~LS~~IA~~RA: 79
Pea 1: NAIF~~FL~~ESS~~SH~~AL~~FL~~AM, FFVT~~NI~~SA~~Q~~PL~~Q~~LS~~GT~~N~~F~~SC~~FD~~VS~~PP~~SC~~ET~~VY~~TA~~FA~~SP~~N~~EL~~SL~~NI~~SD~~IF~~PM~~SP~~LS~~IA~~KA: 79
M.t 1: NSAF~~FL~~ESS~~SH~~AL~~FL~~V~~LM~~FL~~FL~~T~~NI~~SA~~Q~~PL~~Y~~I~~SE~~T~~NI~~CP~~VD~~SP~~CF~~ET~~VY~~TA~~FA~~Q~~SP~~N~~EL~~SL~~NI~~SD~~IF~~N~~LS~~PL~~RI~~AKA: 80

Lotus 20: SNID~~AG~~K~~DL~~VP~~GO~~V~~LL~~Y~~FT~~Q~~GA~~GH~~SS~~ANT~~SY~~Q~~LO~~GS~~YD~~FA~~T~~L~~VE~~N~~LT~~N~~NI~~VO~~AN~~GP~~VN~~Y~~LL~~PER~~VK~~VP: 159
Pea 20: SNIED~~ED~~K~~LY~~ES~~OV~~LL~~IP~~VT~~CC~~CT~~NR~~Y~~FA~~NP~~TY~~TI~~K~~LD~~NY~~FI~~VS~~TS~~YQ~~N~~LT~~N~~VE~~ME~~N~~PN~~LS~~PN~~LL~~PF~~EE~~IK~~VY~~: 159
M.t 21: SNIE~~ED~~K~~LI~~P~~D~~Q~~LL~~EV~~FT~~CC~~CT~~N~~HS~~FAN~~ITY~~SI~~KQ~~GN~~FF~~IL~~IS~~YQ~~N~~LT~~NY~~LE~~FK~~N~~FN~~PN~~LS~~PT~~LL~~PL~~OT~~K~~VY~~: 160

Lotus 160: PLCK~~CP~~SK~~NQ~~LK~~GI~~Q~~Z~~L~~IT~~Y~~WN~~K~~PN~~D~~RY~~SL~~VS~~AK~~FG~~AS~~PA~~D~~IL~~TEN~~RY~~Q~~OD~~TA~~TN~~LF~~IL~~IP~~VT~~Q~~LP~~EL~~TP~~OP~~SS~~NGR: 239
Pea 160: PLCK~~CP~~SK~~NQ~~LK~~GI~~K~~HL~~IT~~Y~~W~~Q~~AN~~W~~Y~~TV~~VS~~CK~~FG~~ASQ~~MD~~FT~~EN, MONP~~TA~~ST~~NV~~DL~~IP~~VT~~IL~~FP~~VI~~Q~~PS~~NGR: 237
M.t 161: PLCK~~CP~~SK~~NQ~~LK~~GI~~K~~YL~~IT~~Y~~W~~Q~~D~~NR~~Y~~TV~~SL~~VS~~CK~~FG~~ASQ~~VE~~MLA~~EN~~, NHRP~~TA~~ST~~NR~~SV~~LI~~PT~~SL~~PK~~LD~~OP~~SS~~NGR: 239

Lotus 240: K.SSI~~HL~~L~~VL~~IG~~IT~~L~~CT~~LL~~TA~~VL~~TS~~GL~~VV~~Y~~TC~~RR~~K~~AL~~NR~~TAS~~SA~~ET~~AD~~K~~LL~~SG~~VS~~GY~~VS~~K~~PN~~VY~~BI~~DB~~IM~~E~~AT~~K~~DP~~SD: 319
Pea 238: KNST~~Q~~KE~~AF~~I~~CI~~SL~~CS~~CA~~FF~~V~~VL~~IS~~LV~~Y~~TV~~CL~~MK~~EL~~NR~~ST~~SL~~ET~~AD~~K~~LL~~SG~~VS~~GY~~VS~~K~~PT~~MY~~EM~~D~~AI~~MB~~AT~~N~~LS~~B: 317
M.t 239: KSSQ~~N~~L~~AL~~I~~IG~~IS~~LS~~CA~~FF~~IL~~VL~~IS~~LV~~Y~~TV~~CL~~MK~~EL~~NR~~ST~~SS~~ET~~AD~~K~~LL~~SG~~VS~~GY~~VS~~K~~PT~~MY~~BI~~D~~AI~~MB~~GT~~N~~LS~~B: 319

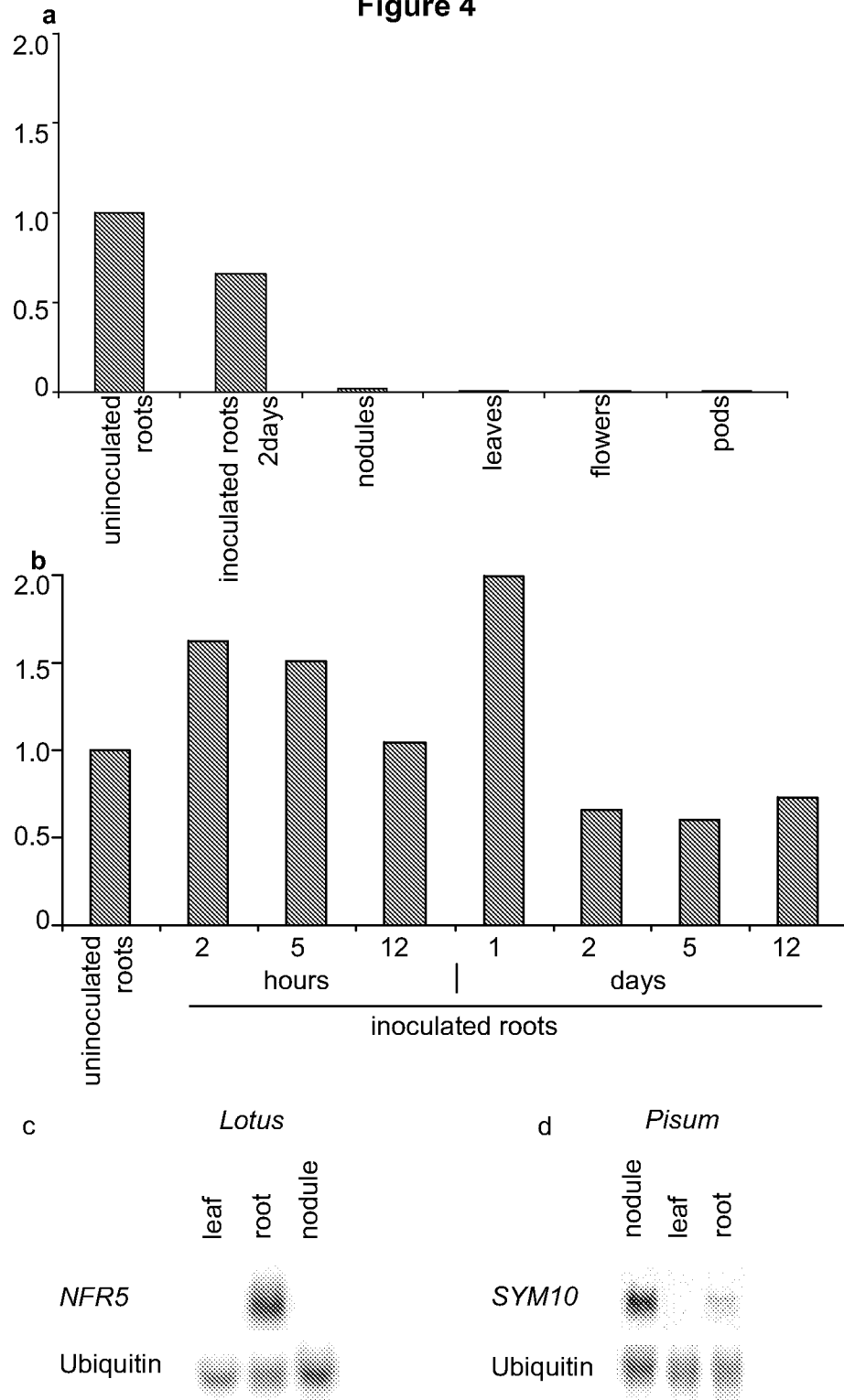
Lotus 319: ECK~~V~~GE~~SV~~YKAN~~IEGR~~VV~~A~~V~~K~~IK~~EG~~AR~~NE~~KL~~ILQ~~VN~~H~~GN~~L~~V~~K~~MG~~VS~~SG~~YD~~NC~~FL~~VY~~E~~Y~~AE~~NG~~SLA~~EW~~LP~~AK~~SG~~T~~: 398
Pea 318: NCK~~IG~~ES~~VY~~KAN~~IDGR~~V~~LA~~V~~K~~IK~~D, ASEL~~K~~ILQ~~VN~~H~~GN~~L~~V~~K~~MG~~VS~~SD~~NE~~GC~~PL~~VY~~E~~Y~~AE~~NG~~SL~~DE~~ML~~PS~~EL~~SK~~T: 396
M.t 319: NCK~~IG~~ES~~VY~~KAN~~IDGR~~V~~LA~~V~~K~~IK~~D, ASEL~~K~~ILQ~~VN~~H~~GN~~L~~V~~K~~MG~~VS~~SD~~NE~~GC~~PL~~VY~~E~~Y~~AE~~NG~~SL~~HE~~ML~~PS~~ES~~SK~~T: 397~~~~~~

Lotus 399: PN, SLTS~~Q~~R~~IC~~IA~~VD~~V~~AV~~GLQ~~YM~~HE~~HT~~Y~~PR~~I~~HR~~D~~IT~~TEN~~IL~~DS~~NE~~FK~~AN~~E~~FA~~M~~AR~~TS~~IN~~PM~~PK~~ID~~V~~FA~~FG~~V~~LL~~: 475
Pea 397: SNGV~~Y~~SL~~TS~~Q~~R~~IT~~V~~A~~VD~~V~~AV~~GLQ~~YM~~HE~~HT~~Y~~PR~~I~~HR~~D~~IT~~TEN~~IL~~DS~~NE~~FK~~AN~~E~~FA~~M~~AR~~TS~~IN~~PM~~PK~~ID~~V~~FA~~FG~~V~~LL~~: 476
M.t 398: SNGV~~Y~~SL~~TS~~Q~~R~~IT~~IA~~ND~~V~~A~~IG~~LQ~~YM~~HE~~HT~~Y~~PR~~I~~HR~~D~~IT~~TEN~~IL~~DS~~NE~~FK~~AN~~E~~FA~~M~~AR~~TS~~IN~~PM~~PK~~ID~~V~~FA~~FG~~V~~LL~~: 477

Lotus 476: TELL~~T~~GE~~K~~AN~~TT~~KE~~NG~~EV~~VN~~L~~MD~~W~~BI~~FD~~IE~~NR~~RE~~IR~~K~~MD~~PH~~LES~~FP~~Y~~HD~~N~~AL~~SL~~AS~~LA~~VN~~CT~~AD~~K~~SL~~SR~~PS~~IA~~EL~~: 555
Pea 477: TELL~~T~~CK~~KA~~IT~~TM~~EN~~CE~~V~~V~~IL~~MD~~W~~BI~~FD~~IE~~GN~~RE~~RS~~IR~~K~~MD~~PK~~LEN~~FP~~Y~~HD~~N~~AL~~SL~~AS~~LA~~VN~~CT~~AD~~K~~SL~~SR~~PS~~IA~~EL: 556
M.t 478: TELL~~T~~GE~~K~~AN~~TT~~KE~~NG~~EV~~V~~IL~~MD~~W~~BI~~FD~~IE~~GN~~RE~~RS~~IR~~K~~MD~~PK~~LES~~FP~~Y~~HD~~N~~AL~~SL~~AS~~LA~~VN~~CT~~AD~~K~~SL~~SR~~PS~~IA~~EL: 557

Lotus 556: VLSL~~FL~~EQ~~SS~~N~~PT~~L~~ER~~SL~~TS~~GL~~DE~~ED~~DA~~H~~IV~~ES~~IT~~AR: 595
Pea 557: VLCL~~SL~~EN~~Q~~SS~~EP~~ML~~ER~~SL~~TS~~, CLVE~~EA~~, THY~~VT~~SV~~IA~~R: 594
M.t 558: VLCL~~SL~~EN~~Q~~SS~~EP~~ML~~ER~~SL~~TS~~, CLDA~~EA~~, THY~~VT~~SV~~IA~~R: 59

Figure 4



a **Figure 5**

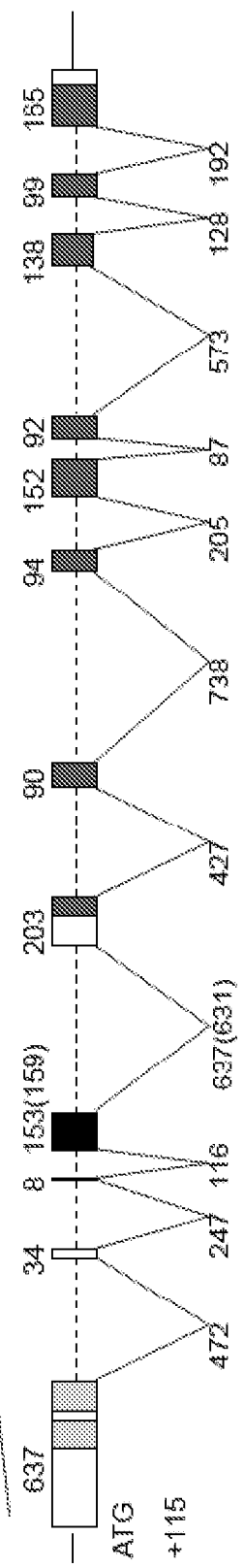
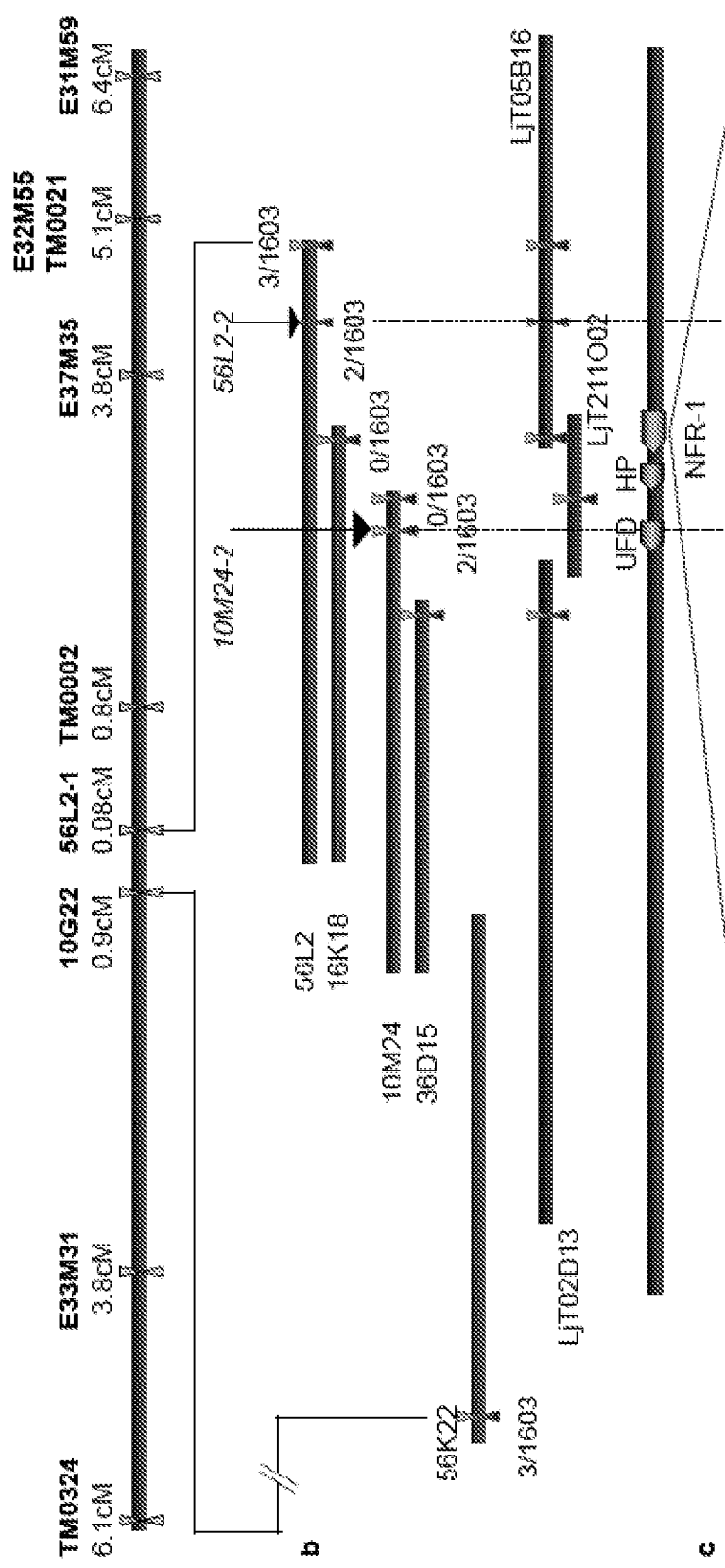


Figure 6a

MKLKTG LL FFILLLGH	SP
VCFHVESNCLKGCDLALASYIILPGVFILQNIITTFMQSEIVSSNDAITS YNKDKILNDINIQS FQ RLNIPFP CD CIGGEFLGHVFE	103
YSASKG DT YETI AN LYYANLTTVDLLKRFNSYDPKNIPVNAKVNV	LysM1
VN CSC GN SQ VSKDYGLFIT	168
<u>YPIRPGDTLQDI</u> ANQSSLDAGLIQSFNPSVNF SK DSGIAFI <u>P</u>	LysM2
GRYKNGVYVPLYHR	224
TAGLASGA AV GISIAGTFVLLLLLAF CM YV	TM
RYQKKEEEKAKLPTDISMALSTQD (GN) ASSSAEYETSGSSGPGTASAT GLTSIMVAKSMEFSYQELAKATNN	332 (324)
FSLDNKI GQGGFG AVYYAELRGKKT AIK KMDVQAST EFLCE ELKVLTHV	KD
<div style="display: flex; justify-content: space-around; font-size: small;"> I II III </div> HHLNLVRLIGYCV EG SLFLVY E HIDNNGNLGQYLHGSGKE LPWSSRVQIA <div style="display: flex; justify-content: space-around; font-size: small;"> IV V VIa </div> LDAAR GLEYI HEHTVPVYI HRDVKSANILID KNLRGKVA DFGL TKLIEVG <div style="display: flex; justify-content: space-around; font-size: small;"> VIa Vib VII </div> NSTLQTRLV GTFGYMPPE YAQYGDISP KIDVYA F G VVLFELISAKNAVLKT <div style="display: flex; justify-content: space-around; font-size: small;"> VIII * IX </div> GELVAESKGLVALFEEALNKSDPCDALRKLVDPR L GENYPIDSVLKIAQLG <div style="display: flex; justify-content: space-around; font-size: small;"> * </div> RACTRDNPLLRPSMRSLVVALMTLSSLTEDCDD ESS YESQTLINLLSVR* <div style="display: flex; justify-content: space-around; font-size: small;"> XI </div>	621 (623)

Figure 6b

SMART0257	YTVKKGDTLSSIA RR YGISVS--DL LELNN ILDPDNLQVGQKLKIP-
NFR1-M1	104-Y S ASKGDTYETI AN LYYANLTTVDL L KRFNSYDPKNIPVNAKVNV--149
At21630-M1	105-Y S VRQEDTYERVAISNYANLTTMES LQARN PFPAT NI PLSATLNVLV-151
SMART 0257	YTVKKGDTLSSIA RR YGISVSDLLELNN-ILDPDNLQVG1KLKIP
NFR1-M2	167-YPIRPGDTLQDIANQSSLDAGLIQSFNP-SVNF SK DSG--IAFI P -208
At21630-M2	170-YPLRPEDSLSSIA RR SSGV SAD ILQRYNP-GVNFNSGNG--IVYV P -211
BAB89226-M2	168-YAVQDGD TL GNIA S LFRSSWKDILD LN PRVANPDFIKPGWILFI P -212
Volvox M	42-YTIQPGDTFWAIAQRRGTTVDVIQSLNP-GVNP AR LQVGQVIN P -85

Figure 7

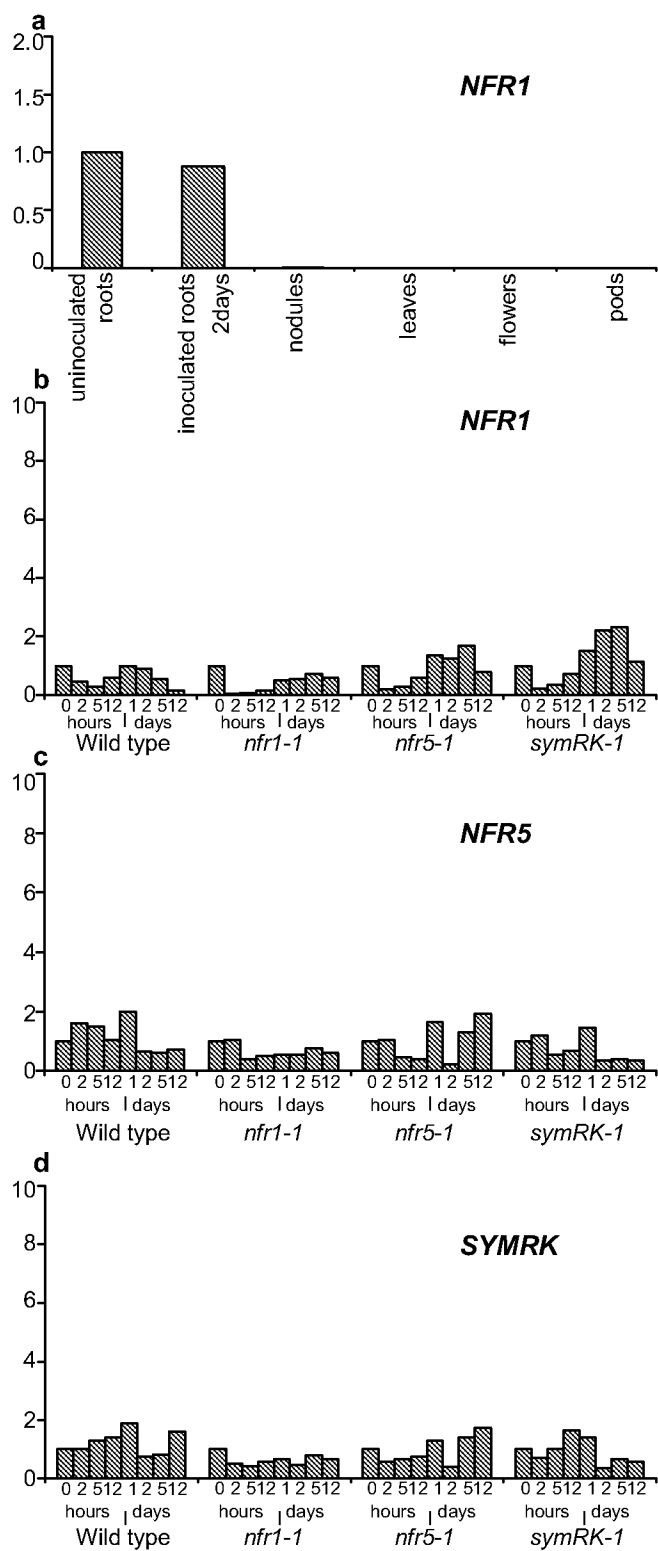


Figure 8

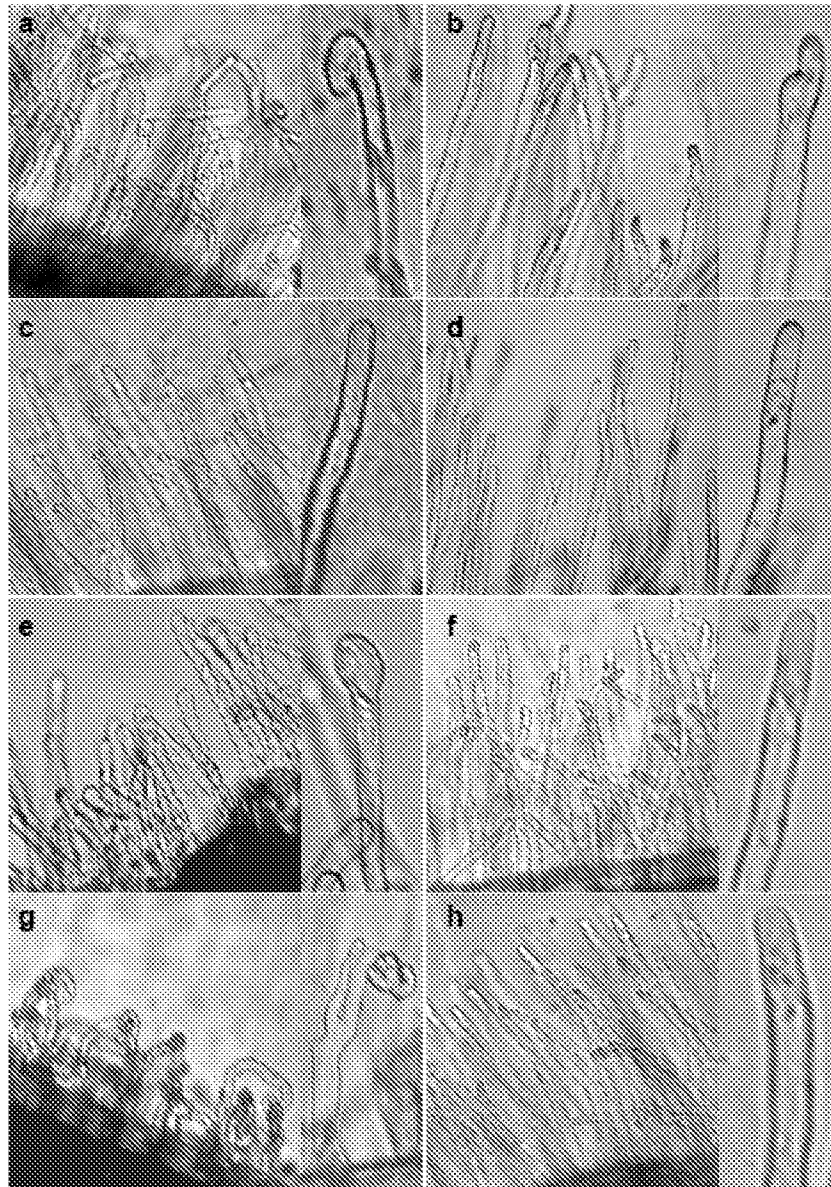


Figure 9

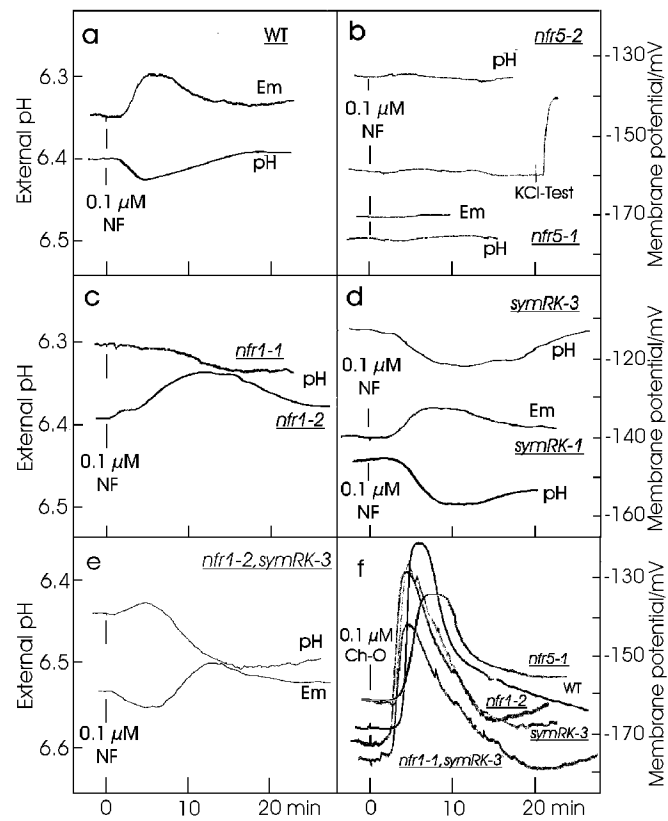


Figure 10

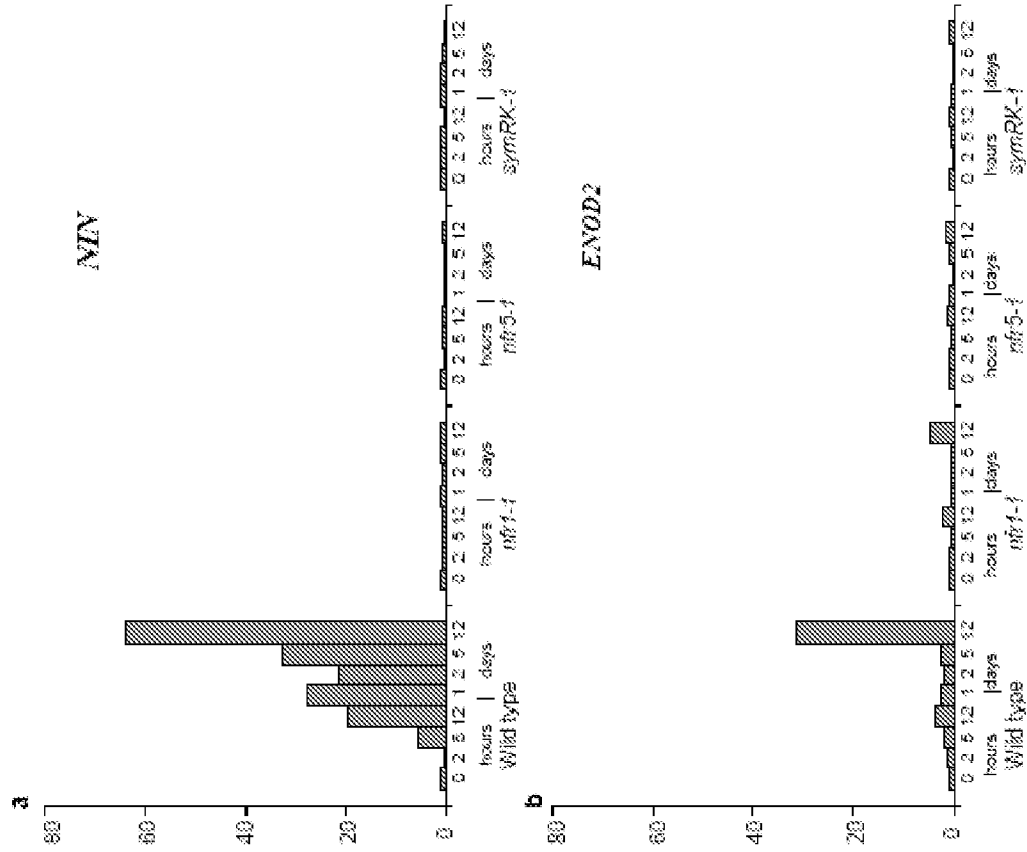


Figure 11

NFR1 1:MK...LKTG.LLFFILLGHVCFHVENCNG...C..D..LALASYIL...PQVFIQNTITFMQSEIVSNDAITSYNKKILNEINIQSQFRL
NFR5 1:MAVFFLTSGELSLFLALTLLFTNTIAASEKISGFDFSCPVDSPSCETIVTYTAQSPNLLSLTNISDIFDISPLSAPAS...NIDAGK.DKLVEG.QVL

NFR1 95:NIPFPCLICGGEFLGHVFEYSASKGDTTETIANLYANLTVVLLERFN.SYDPENIPVRAKVNVTNVCSCGNS.QVSKDYGLFTTYPPIEPGDTLQDIAN
NFR5 96:LVPVTCGCAGNHSSANT.EYQIQGDSYDFVATTLYENLTNHNIVQASPCVNPYLLPERVKVVPFLFCPCPSKNQLNKGIGIYLLTTYVWKPRDNVSLVSA

NFR1 183:QSSLDAGLIQSPN.PSVNFSKDSGI.APFGRYKNGVYVPLVHRTAGLASGAAGVGIAGTFVZVLLLLAFQMYVRYOKKEEKAKLPTDISMALSTQDASS
NFR5 195:KFGASPADILTEMEYGQDFTAATNLPILIP...VT..QLPELTQPS..SNGRKS..EHLVLVILGITLGCTLL.TAVLTGTLVVVYCRRKALN.ETASS

NFR1 281:SAEYETS3SSGPGTASATGLTSIMVAKSMEEFSYOELAKATNNFSLDNKIGQG3F3AVVYAEIRGKKTAIKKMDVQASTFELCELKVLTHVHHMLVPLIG
NFR5 283:AETADKLISG...VSGY...VSKPNVYEIDEIMEATKDFDECKVGES...VYKANIEGEVVAVKKIKEGGANE...ELKILQKVNHGHNELVLMG

NFR1 381:YC..VEGSLVLVYEHIDNENLQYILHC.SCKEP..LPWSSEVQIALDAARGLEYIHETVVPVYIHRDEVKSANILIDKNLRCKVADPGLTKLIEVGNSTLQ
NFR5 367:VSSGYDNCFLVYEYAEENGSLAEMLFSGSSGTPNSLTWSQRISIAVDVAVGLQYMHEHTYPRIIHRBITTSNILLDSTFKAKIANFAMAR....TST..

NFR1 476:TELVGTGFMPPFYAQYGDISPKIDVYAFGVVLFELISAKNAVL..KTGELVAESKGLVALFEEALNKSDPCDALRKLVDPRLSENYPIDSVLKLQQLGR
NFR5 459:.....NP.....MMPKIDVFAPGVLLIELLTGRKAMTKENGEVVMWKDMWELFUIBENR...EERIEKMDPNLESFYHIDNALSLSASLAV

NFR1 574:ACTRONFLRDPMEKSLNVALMTLSLTDQDDDESSYES.....QTLINLLSVR
NFR5 540:NCTADEKSLSPQWAEIVLSLSFLTQSSNPTLERSLTSGLDVEDDAHIVTSITAR

Figure 12

Protein domain structure of *Lotus japonicus* and *Lotus filicaulis* NFR1 and NFR5 proteins and of the hybrid proteins

